



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/910,753	07/24/2001	Rudy M. Emrick	211618US99	2678

22850 7590 07/16/2003

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

FORDE, REMMON R

ART UNIT PAPER NUMBER

2826

DATE MAILED: 07/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/910,753

Applicant(s)

EMRICK ET AL.

Examiner

Remmon R. Fordé

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) 40-48 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

NATHAN J. FLYNN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response To Restriction

Applicant's election with traverse of claims 1-39 in Paper No. 6 is acknowledged. The traversal is on the ground(s) that both groups of claims could be searched together without undue additional effort by the examiner. This is not found persuasive because there still is an undue burden on the examiner as pointed out in Paper No. 2.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwamura et al. in view of Hata et al..

Referencing Figures 1-29, Iwamura et al. discloses providing a composite circuit of bipolar transistors and MOS transistors and semiconductor integrated circuit device using the same substrate (i.e. compound semiconductor layer). (Column 3, line 34 – Column 14, line 67.)

Iwamura et al. fails to disclose providing a compound semiconductor layer structure provided with a monocrystalline silicon substrate; an amorphous oxide material overlying the monocrystalline silicon substrate; a monocrystalline perovskite oxide material overlying the amorphous oxide material; and a monocrystalline compound semiconductor material overlying the monocrystalline perovskite oxide material.

However, referencing Figure 1, Hata et al. discloses a semiconductor structure provided with a monocrystalline silicon substrate (1); an amorphous oxide material (silicon dioxide) (2) overlying the monocrystalline silicon substrate; a monocrystalline perovskite oxide material (MgO) (3) overlying the amorphous oxide material; a monocrystalline compound semiconductor material (Column 7, lines 2-9.) Lastly, Hata et al. further discloses that it is possible to form a three dimensional semiconductor device, a composite semiconductor device, a high performance semiconductor memory device or the like on his final crystalline semiconductor substrate to obtain a semiconductor device which is new and highly integrated at an inexpensive cost. (Column 3, line 31 – Column 7, line 14.)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the compound semiconductor layer structure as disclosed by Hata et al. for the device as disclosed by Iwamura et al. because Hata et al. teaches that it is possible to form a three dimensional semiconductor device, a composite semiconductor device, a high performance semiconductor memory device or the like on his final crystalline semiconductor substrate to obtain a semiconductor

Art Unit: 2826

device which is new and highly integrated at an inexpensive cost. (Column 3, line 31 – Column 7, line 14.)

Relevant Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kume et al., Horiuchi et al., and Saigoh each disclose forming composite transistor semiconductor devices on the same substrate.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Remmon R. Fordé whose telephone number is (703) 305-4533. The examiner can normally be reached on Monday-Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J. Flynn can be reached on (703) 308-6601. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-5841 for regular communications and (703) 308-5841 for After Final communications.

Application/Control Number: 09/910,753

Page 5

Art Unit: 2826

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Remmon R. Fordé
June 27, 2003